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ABSTRACT

Part two of a master plan for the development of public telecommunications in the Commonwealth of Virginia summarizes the main findings and recommendations derived from various master state plan studies, surveys and analyses. Inadequate funding, planning, management, coordination and evaluation currently were found to impede the development of a statewide system. The master plan findings and recommendations if acted upon should tend to: improve planning, management and evaluation; reduce waste, redundancy, under-utilization and omissions; enhance efficiency; provide integrative management problem-solving and administration; establish workable and fair procedures for reviewing and re-allocating technical telecommunication resources; enhance the desired and highly flexible systemization of interconnection resources, especially multiplexing networks; and encourage participation of higher educational institutions on the policy and decision-making boards. (WCM)

ED092154

MASTER STATE PLAN

for

PUBLIC TELECOMMUNICATIONS

PART II

PURSUANT TO CODE OF VIRGINIA, TITLE 22, CHAPTER 16

VIRGINIA PUBLIC TELECOMMUNICATIONS COUNCIL

COMMONWEALTH OF VIRGINIA

Adopted

April 2, 1974

IR000 717

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SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS YIELDED BY VARIOUS MASTER STATE PLAN STUDIES, SURVEYS AND ANALYSES RELATIVE TO PART TWO OF THE PLAN

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

Findings: (no rank order intended)

A) The Commonwealth government (excluding the counties, cities and towns) is one of the two or three heavier users of telecommunications resources in Virginia. While the largest annual expenditure for such resources is being incurred for common-carrier telephone services (some $15,000,000), considerable investments are also being made in land-mobile radio and fixed microwave systems, non-commercial FM and TV stations and other tele-media capacities like audio/video tape recorders and closed-circuit television. (Annual expenses relating to these non-common-carrier resources are estimated to be at the "several million dollar" level.) Special non-tax revenues and direct Federal grants can account for only a small percentage of all such annual investments by the Commonwealth.

B) The Commonwealth's investments in this diverse array of needed telecommunications services, capacities and facilities are not currently coordinated by any single state agency or any inter-agency mechanism. The opposite is more nearly true. Even though the Division of Engineering and Buildings has developed and implemented effective procedures for managing the vital Richmond Centrex and the related state-wide telephone network (SCATS), along with the attendant TELPAK network, most other sectors of telecommunications investment have been left to the administration of "immediate users." This is not said to suggest in any way whatever that the numerous telecommunications "managements" within the Commonwealth government have been negligent, ineffectual or egregiously inefficient simply because they worked for the most part in an uncoordinated way. Indeed, studies by the VPTC indicate that the Commonwealth government has been remarkably fortunate in having dutiful, thoughtful and thrifty stewards in charge of its growing, scattered telecommunications domain. No shocking instances of waste or outrageous redundancy have been observed; although it must also be reported that the absence of well-coordinated, professional management has been reflected in the unevenness of telemedia investments and the somewhat unimaginative uses of common-carrier interconnection resources.

But the problem of telecommunications management facing the Commonwealth government is not so much one of long standing as one about to arise.

We are literally on the verge of a telecommunications revolution: a series of profound technological changes that will permanently alter the ways

in which the Commonwealth government delivers education and information to the citizens and institutions of the state. We are now seeing the emergence of new ways of extending vitally-needed services to a wider range of citizen clienteles, a proliferation of service categories, and an almost geometric increment in the sheer volume of data to be governmentally processed. The demands for such services coupled with the new technological possibilities of an inventive telecommunications science are now beginning to yield a condition of irresistible dynamism with which the Commonwealth government must contend in various ways. To these mounting pressures are now added the additional telecommunications demands which are being generated at a "headlining" rate by the exigencies of the so-called energy crisis, with its concomitant "transportation crunch." The Commonwealth government will need more and more to turn from service "delivery" schemes dependent on traditional transportation resources to those more innovative processes facilitated by rationalized telecommunications services. This will mandate improved, coordinative management over our numerous telecommunications investments, allocations and operations.

C) Telecommunications is a new, highly sophisticated and dynamic professional field: an applied science which makes use of the creative processes of art, the practical techniques of engineering, and the flexible management and econometric procedures of modern administration. It is an activity field which can be frustrated to the point of dysfunction if required to fit into the traditional mould of rigid, "prescribed-step" bureaucratic decision-making. By nature, the telecommunications specialist is a problem-solver. The technical arrays he designs, operates and studies are best described as "behavioral" systems: means by which human behavior can be efficiently and desirably affected across space and through time. Telecommunications systems are, fundamentally, management techniques. When a telecommunications specialist is asked to design a technical array for message transmission, he must insist on becoming involved in answering a number of absolutely essential prior questions: what sorts of responses are to be elicited from which persons (or machine surrogates), at which locations, and in what time-frame. Only when there are adequate answers to these basic questions can the specialist examine what message parameters should be and, therefore, what technical production/storage/transmission systems must be employed. These diagnostic steps can not be "negotiated" effectively in a rigid, bureaucratic framework. Not only would such a framework tend inevitably to force solutions into a narrow "procrustean bed" built from a conventional stock of pre-conceived possibilities, but, even more dysfunctionally, agencies and institutions which were required to turn to such a telecommunica-

tions bureaucracy would come quickly to regard it not as a problem-solver but an obstacle to "be got around." Activity emphasis would shift from focussing on real needs and imaginative (even if unconventional) solutions over to the time-honored protocols and games of "getting agency approvals." Telecommunications responsiveness to legitimate need would be reduced to that of "controlling expenses and uses." (This is not to suggest that controlling expenses and uses is an unimportant aspect of telecommunications management, but to note that such controls will occur in consequence of practical problem solving not as administrative ends in themselves.) The VPTC found a deep sense of anxiety among state personnel about the "threat" of a new telecommunications bureaucracy. It, therefore, should try to devise responsive policies and structures which would not lead in this clearly undesirable (and professionally counter-productive) direction.

D) As noted in the findings attendant to Part One of the Master State Plan for Public Telecommunications, the VPTC has found that available non-commercial radio broadcasting facilities have been rarely employed to carry out important governmental and educational purposes in Virginia. It also found that schools and other service "use points" more often than not have available radio reception or audio resources which could be employed as terminal elements in an audio delivery system, were one to be developed. The design and development of such a system to help carry out the governmental purposes implicit in the Public Telecommunications Services Contract policies may require certain licensing, technical or administrative readjustments in those audio/radio facilities maintained by Commonwealth units. The present policy framework governing such facilities is totally without the sensible coordinative structure needed for proper management analysis and decision making. Radio (and television) frequencies are scarce national resources, and their dedication by the Commonwealth government must be undertaken with due consideration to their greatest potentials for service.

E) Also as noted in the main findings related to Part One, the VPTC has found through its extensive survey efforts that Commonwealth-supported institutions of higher education, with one or two notable exceptions, have made relatively little constructive use of modern telemedia in improving their instructional efficiencies or extending their academic resources to meet enlarged objectives and reach more diverse clienteles. Higher educational institutions have not for the most part contributed to the organization and development of, and do not now participate on the policy making bodies of, the existing public telecommunications entities. Moreover, these institutions have tended to develop what technological systems and facilities they have without well-coordinated planning so that critical

factors of technical, applicational and design compatibility have been seriously compromised. The VPTC has determined that two elements are needed: responsible, professional stimulation of improved telemedia strategies and imaginative statewide coordination of telemedia facilities and design process developments.

F) Currently, the Commonwealth government maintains lease arrangements with common carrier suppliers for almost a dozen different "dedicated" networks of varying geographic scope and application (including the well-known SCATS system). For the most part these fairly routine and essentially discrete interconnection capacities are devoted to voice-grade telephone and low-speed data transmission (including teletypewriter). There are no common-carrier supplied broadband multiplexing networks yet in service for use by the Commonwealth government. The state itself operates a limited number of relatively unsophisticated microwave and land-mobile systems for use in the public safety sector. The Commonwealth government makes no use of existing CATV facilities anywhere in the state, either for interconnective or for self-contained distribution. Network transmission of national ETV programs from the Public Broadcasting Service in Washington is available to the five public telecommunications entities from telephone company circuits leased by the federally-funded Corporation for Public Broadcasting. Four of the larger non-commercial FM radio stations in the state are tied into a somewhat similar audiobandwidth network funded by the CPB for the transmission of National Public Radio programs from Washington. The Virginia stations do not have any regular transmission access to these federally-provided network facilities, nor can the Commonwealth government use these expensive facilities for the distribution of its own audio-video materials and programs. (Teletypewriter circuits operated in connection with these federal networks are also denied to Commonwealth use, although the Virginia telecommunications entities may use them for their own internal message distribution.) Proposals have recently been drawn up by the ADP Agency to establish a new common-carrier supplied wideband network for high speed data transmission among computers operated at various institutional and agency locales around the state.

As has been noted, there is no unified coordinative planning, management or operation of the diverse interconnection networks available to the Commonwealth government. There is evidence to suggest that a continued absence of such rationalizing coordination will lead increasingly toward redundancy, omission and under-utilization of facilities-as-a-whole. It is VPTC's finding that such governmental coordination is now required in order to eliminate undesirable redundancy, to avoid tele-

facilities omissions and under-utilization, and to prevent "uneven" and fragmented developments among the various agencies, institutions and organs of the Commonwealth government. The savings to be effected from such careful and imaginative coordination should more than pay for the professional mechanisms to be employed.

Recommendations:

In light of the foregoing and pursuant to the provisions of the Public Telecommunications Act of 1972, we recommend that the policies set forth in chapters VII through X and the summary of additional staff duties in Chapter XI, be adopted as policy elements constituting Part Two of the Master State Plan for Public Telecommunications. The policies comprehended will tend to:

A) improve the coordinative planning, management and evaluation of the Commonwealth government's necessary investments in a wide variety of telemedia and interconnective telecommunications resources, services, capacities and facilities;

B) reduce waste, redundancy, under-utilization and omissions in the Commonwealth government's growing telecommunications domain;

C) enhance the efficiency with which telecommunications techniques can be yoked to the routine performance of vital governmental and educational services;

D) provide integrative telecommunications management dedicated to rationalized problem solving and responsive facilities administration;

E) establish workable and fair procedures for reviewing and re-allocating telemedia and telecommunications resources within the Commonwealth government's technical domain;

F) move the Commonwealth government toward the desired and highly flexible systemization of interconnection resources, especially dedicated multiplexing networks furnished by common-carrier.

G) encourage participation of representatives of the higher educational institutions on the policy and decision-making boards of the existing public telecommunications entities.

POLICY ELEMENTS CONSTITUTING PART TWO OF THE MASTER STATE PLAN FOR PUBLIC TELECOMMUNICATIONS IN VIRGINIA

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CHAPTER VII

POLICIES RELATING TO FCC-REGULATED TELEMEDIA LICENSED TO COMMONWEALTH UNITS

1) Except in those special circumstances to be discussed hereunder, the Commonwealth government* should continue to avoid outright ownership of any large-scale electronic mass-media including UHF and VHF television broadcasting stations, FM radio broadcasting stations of higher than 5,000 watts (ERP), AM radio broadcasting stations, and CATV systems subject to FCC certification requirements.

   Instead, the Commonwealth government should use the contractual policies and procedures set out in Part One, Chapter I, of the Master State Plan for Public Telecommunications to obtain the vital telecommunications services, capacities and products its constituent organs, agencies and institutions legitimately need to carry out their various instructional and informational tasks. To generate maximum effectiveness in coordinating service to higher education, VPTC actively encourages representation of the senior institutions in each of the higher educational regional consortia on the boards of the public telecommunication entity serving their regions.

   Where possible and feasible, the Commonwealth government should seek to arrange for such telecommunications services, capacities and products from the established public telecommunications entities, other noncommercial radio and television facilities based in Virginia, or other suppliers (as noted in Chapter I, Section 21, the VPTC is to have sole authority to conclude or approve such arrangements, contractual or otherwise, between Commonwealth government units and eligible telecommunications suppliers, with such exceptions as are stated in Sections 17 and 21 of Chapter I.)

2) Commonwealth educational institutions which already own and hold the license of non-commercial FM broadcasting stations for the primary purpose of using such limited facilities for training students and for providing entertainment and information services to their own students and faculties should continue to operate these media facilities from accustomed support sources unless and until the VPTC shall determine in the course of special technical studies that the federally-assigned frequencies on which any one of these stations operates might be needed in order to execute important tasks anticipated for a continuing series of VPTC Public Telecommunications Services Contracts. In such special

*Specifically excluding the countries, cities and towns along with the associated local public school divisions and planning districts.

instances, and where facts compel, the VPTC will be empowered to call a conference of the officials of the licensee institution, of officials of the established public telecommunications entity designated by VPTC to serve the geographic area involved, and of representatives from any Commonwealth organ having a vital interest in the proposed contractual services. The conference should be structured to review for all parties the nature and urgency of the "delivery" problem. The VPTC should ask the licensee institution and the entity to join it in considering the following pertinent issues:

a) Is the affected frequency the only one available for broadcasting the Commonwealth programming services contemplated, directly or through SCA mechanisms?

b) Is an ERP increase on the assigned frequency possible? Is such a power increase necessary for the contractual services completed? Should a lowpowered state-owned station on a particular frequency be eliminated (or shifted) in order to provide clear spectrum to a more powerful station elsewhere?

c) What are the likely capital costs to be incurred in providing improved programming and transmission facilities (if required) and in providing increased power (if required) through antenna relocation, antenna relocation, antenna heightening and/or transmitter power output augmentation?

d) What are the program design, production and storage requirements for the Commonwealth programming services contemplated? Which of these resources already exist in the licensee institution? Which might be readily available from the entity? What costs (capital and operating) would likely be associated with providing such facility resources from the one source or the other? or both?

e) What are the design, production, technical and management personnel requirements likely to be for the contemplated Commonwealth programming services? Which of these requirements can be readily met by the licensee institution? Which by the entity? What are the likely Commonwealth budgetary requirements?

f) What are the design, production, technical, management and other personnel requirements to be encountered by a licensee (for a noncommercial station of the power required for executing the Commonwealth programming contracts contemplated) at broadcast times other than those to be governed by the contract obligations? What are the likely costs for such personnel elements? Which would be readily available from the licensee institution? Which from the entity?

g) What other facilities and attendant costs would be associated with the regular operation of a station in addition to those cited previously, especially in regard to station programming obligations outside the Commonwealth contract?

h) What resources will the licensee institution have readily available to devote to prevailing FCC requirements respecting "community ascertainment?" What legal difficulties (if any) might such ascertainment procedures pose for the licensee institution or for the Commonwealth government as a whole? How would these same questions be answered by the entity?

i) What existing sources of capital and operating monies are there (to meet the costs identified above) for the licensee institution and the entity (beyond any funding associated with a VPTC contract)? What are the most reasonable expectations with respect to monies from those sources over the interval contemplated? And thereafter?

j) What other subvening options might be legally and practically open to the licensee institutions? For the entity?

k) Could the licensee institution itself arrange with the VPTC for the contracted delivery of contemplated telecommunications services, capacities and products? At what likely cost levels? With what direct or indirect constraints?

l) Could the entity arrange with the VPTC for the contracted delivery of contemplated telecommunications services, capacities and products if the entity were to become licensee of the station and equip it to the technical levels necessary (subject to FCC approval)?

m) Could the VPTC contract with the entity for the specific provision of adequate programming services to the educational institution itself if the entity were to become licensee? At what costs? With what constraints? With what guarantees? Can the services, capacities and products be contractually specified? By what administrative procedures?

n) If the entity should take up the license (subject to FCC approvals), what reimbursements, if any, would be necessary and appropriate for the affected educational institution? How would such funds be paid? On what schedule? Through what legal routes? How might capital holdings be transferred in title? Are there legal constraints in transferring physical holdings gained through federal grants?

o) If the entity should take up the license (subject to FCC approvals), should the affected educational institution be assured of formal rep-

resentation on the entity's governing board? What legal instruments (if any) would be needed to facilitate such representation? What FCC actions (if any) would be required?

3) After a full and open review of these and related questions by the VPTC, the institutional licensee and the entity, the VPTC would prepare a formal report in which it would set forth the established facts and draw appropriate conclusions and recommendations as to whether:

   a) the VPTC should contract with the licensee institution to deliver the required services, capacities and products;

   b) the series of contemplated Public Telecommunications Services Contracts is sufficiently important to justify changes in technical facilities and/or licensing arrangements;

   c) the entity should be allowed to seek a transfer of license which requires FCC approval, and then to receive a Public Telecommunications Services Contract from the VPTC for needed services, capacities and products;

   d) in the instance of conclusion c), reimbursements to the institution (if any) should be borne by the entity or by the VPTC, or both;

   e) in the instance of conclusion c), the VPTC should undertake to draft a special Public Telecommunications Service Contract with the licensee entity for special services, capacities and products to be supplied the affected educational institution.

4) In analyzing these matters, the VPTC will use the following principles as general guidelines.

   a) The contemplated contractual arrangements should lead to programs, services and capacities of special or surpassing value to the Commonwealth government and of adequate benefit to the facilities operator.

   b) The duration of such contractual arrangements is reasonably likely to be for at least six years (subject, of course, to legislative budgetary actions and FCC re-licensing procedures.)

   c) Any capital costs to be incurred in improving or relocating facilities should be viewed strictly in relation to the importance or urgency of the services to be gained.

   d) Where feasible, capital funds from non-state sources should be optimally utilized in facility development.

   e) Comprehensive operational costs (i.e. those subsumed under anticipated VPTC contracts and those arising outside such obligations)

should be met, wherever feasible, in a subvention composite of both contractually gained tax-derived monies and of non-tax derived funds.

f) The scope of overall public programming services contemplated should be optimally appropriate to the region and population which would be served by the facility involved or proposed.

g) The Commonwealth government should be kept free of entangling federal license obligations of its own to the greatest extent feasible.

h) Any student-training and student/faculty access broadcasting services genuinely required in the institutional situation should be adequately met through the licensing, technical and contractual arrangements recommended.

i) Institutional public relations advantages should not be viewed as paramount in determining licensee identity.

j) Any changes in the licensing arrangements should tend to broaden access to the affected facility by a pluralism of Commonwealth agencies and institutions.

The fundamental test to be applied in resolving those licensee-identity questions must always be: what licensing arrangement will best serve the citizens to be reached and the Commonwealth government as a whole.

5) No Commonwealth institution will be allowed to seek to operate a new non-commercial FM, AM, TV or CATV facility requiring FCC licenses or certificates—unless and until the VPTC shall approve such applications on the basis of its own findings that such arrangements are appropriate and desirable. Where Commonwealth units wish to pursue approvals from the VPTC in order to apply for a specific telecommunications facility, the VPTC will call a review conference to consider the matter. To the conference would be invited VPTC staff and consultant specialists, applicant representatives and officials from the established public telecommunications entity designated by VPTC as having primary service responsibilities in the geographic region to be served by such a facility as that proposed. The questions raised at the conference should be substantially similar to those noted above in Section 2.

Upon expeditious completion of a detailed analysis afforded through the conference (and related activities) the VPTC will issue its written findings and recommendations regarding the proposed telecommunications facility. The recommendations will include an authoritative determination as to whether the Commonwealth unit involved—or any Commonwealth unit—shall be allowed to apply for federal licenses or certificate;

whether such licenses or certificate should be sought by the entity, or whether they should be sought (if at all) by some other applicant.

6) Once a report of the findings, conclusions and recommendations of the VPTC has been furnished the parties involved in a conference (and others who may be very directly affected), the various parties will have thirty days in which to respond.

Should an agency, institution or organ of the Commonwealth government take issue with the VPTC recommendations, it can request the VPTC to advertise and hold a public hearing at which objectives, affirmations and other comments can be offered and examined. All interested officials and citizens would be invited to take part in the hearing which would normally be held at a location convenient to the actual or proposed service area of the telecommunications facility involved.

Following the hearing, the VPTC would reconsider its original report, issuing, in due course, a revision or reaffirmation which would be forwarded to the parties, and made public. If after ten days any of the Commonwealth agencies, institutions or organs involved still object to the VPTC recommendations, the VPTC will ask the Office of the Governor to certify the decision and to seek reasonable compliance therewith.

If at any point one of the entities should object to VPTC recommendations when a Commonwealth unit has not done so, the VPTC* will extend to the entity the right to be heard in open meeting, to which would also be invited the affected Commonwealth parties. Following the session, the VPTC* would reconsider its recommendations, issuing a revision or reaffirmation which would be forwarded to all parties and made public. Objections to the reissued report from a Commonwealth agency, institution or organ would lead to a public hearing as shown above, unless there had been held a prior hearing on substantially the same issues, in which event the VPTC would directly request the Office of the Governor to certify its decision and seek reasonable compliance therewith as may be required.

Where institutional master plans have been developed with the professional assistance and approval of the VPTC, to assure compliance with the State Master Plan, the institutional master plan will be the instrument for the implementation of the objectives of the State Master Plan.

*Customarily such appeals to the VPTC will be handled directly by an ad hoc subcommittee appointed for the purpose by the Chairman.

COMMONWEALTH EDUCATIONAL INSTITUTIONS WHICH OWN AND LICENSE NON-COMMERCIAL FM BROADCASTING STATIONS (AS OF APRIL 1, 1974)

Ten Watts Power (ERP)

Madison College

Virginia Polytechnic Institute & State University

Greater Than Ten Watts, But No More Than 5,000 Watts Power (ERP)

The College of William & Mary

University of Virginia

Virginia Western Community College (State Board of Community Colleges)

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CHAPTER VIII

POLICIES RELATING TO THE ESTABLISHMENT WITHIN VPTC OF AN OFFICE OF GOVERNMENTAL TELECOMMUNICATIONS SERVICES (OGTS)

1) In order to provide coordinative management over the multivarious telecommunications services, capacities and facilities needed by the organs, agencies and institutions of the Commonwealth government, the VPTC will organize within its staff structure, a functional unit to be called the office of Governmental Telecommunications Services (OGTS). The OGTS, to be located in Richmond, will be headed by a professional Supervisor who will report through the Director of Public Telecommunications to the Council and to the Governor's Office.

   The OGTS would define *governmental telecommunications* as those special facilities and techniques by which electromagnetic, electromechanical or photoelectrical signals can be effected and transmitted from one location to another for the purpose of facilitating inter-communication useful to the operation of the government. Such facilities would include wired and wireless transmission systems and telephone networks, either leased from Common Carrier Organizations or owned by the government itself. (Specifically exempted from this OGTS category would be television and radio broadcasting stations and CATV systems. Utilization of these latter telecommunications resources by the Commonwealth is to be governed by the pertinent policies established in Chapters I, II, III, VII and IX. Also exempted are all telecommunications facilities of any kind owned, leased, rented, maintained or operated by the counties, cities and towns or by the local public school divisions.)

2) The OGTS will have the following functions and duties (no rank order intended):

   a) to provide expert analyses of governmental telecommunications tasks and problems as preliminary steps in planning and proposing expeditious, cost-effective measures to be implemented by the OGTS itself and/or by the Commonwealth organs, agencies and institutions directly affected;

   b) to conduct both regular and special evaluative studies about the econometric efficiencies of various governmental telecommunications activities and arrangements;

   c) to develop and help enforce practical telecommunications policies, doctrines, procedures and guidelines to be followed by all governmental telecommunications users;

d) to establish and conduct regular data collection processes (including location audits) by which governmental telecommunications utilization practices and loads may be accurately monitored and equitably charged;

e) to prepare, approve and forward all specifications for services (and related facilities to be quoted or ordered from any Common Carrier Organization (CCO);

f) to review all quotations from any CCO and, then, where adjudged appropriate, to negotiate an order or contract with the CCO for services (and related facilities) to be furnished a requesting Commonwealth unit;

g) to analyze, review and approve all specifications for interconnective telecommunications facilities and network interval devices to be requisitioned by any Commonwealth organ, agency or institution prior to the submission of such specifications to the Department of Purchases and Supply for routine processing. (These analyses should comprehend such factors as need, technical suitability and compatibility, cost, probable obsolescence, alternatives, reliability and servicing requirements.) Computers and other data processing equipment *per se* should be exempted since these technical items are already subject to control instituted by the Division of ADP; in this regard note paragraph r) below;

h) to assist the Attorney General in representing the direct interests of the Commonwealth government (as a large-scale telecommunications user) in matters affecting CCO tariffs before the Virginia State Corporation Commission or the Federal Communications Commission;

i) to set up, maintain or provide access to an accurate inventory file on all identified interconnective telecommunications systems, facilities and devices owned, maintained or leased by all Commonwealth organs, agencies and institutions (a basic listing of CCO-supplied facilities has recently been developed by the telephone company in connection with the Master Plan Study. State-owned facilities have also been inventoried by the Division of Engineering & Buildings and the Office of Emergency Services);

j) to design and supervise various research-and-development activities (including the devisement of computer simulation models) which would enable the Commonwealth government to take rationalized advantage of improved and innovative telecommunications techniques and systems;

k) to specify, negotiate for and directly manage all (i.e. one or more) dedicated interconnection networks (CCO-leased "Added Value", or state-owned, except as noted herein) to be employed by the various organs, agencies and institutions of the Commonwealth government. (Network management will comprehend such factors as traffic access, load control, message priority and confidentiality signal form, interface and conditioning compatibility, cost allocation and charge monitoring);

l) to designate, negotiate for, manage and operate, as integral (or interfacing) elements of a governmental network system, those larger Centrex systems which can serve a multiplicity of Commonwealth organs, agencies and institutions located within a defined metropolitan area. (The Richmond Centrex is the most notable example of such a facility);

m) to advise the Division of Engineering and Buildings on those specific telecommunications resources which should or must be provided for in the design (or re-design) of capital outlay facilities to be owned or leased by the Commonwealth;

n) to advise the Division of Personnel on relevant matters associated with telecommunications management and operation within the governmental structure, especially with respect to the classification and placement of technically or professionally-skilled telecommunications personnel;

o) to advise the Division of the Budget on the practicality, logic, need and cost reliability of all budget proposals which involve new or continuing investments in identified telecommunications services and facilities;

p) to advise the Division of the Budget on matters relating to the equitable distribution of charges for telecommunications uses among affected governmental units and to assist in setting up and maintaining expeditious "billing" procedures for such allocated charges;

q) to advise the Department of Purchases and Supply on matters relating to the acquisition of telecommunications equipment and supplies by governmental units;

r) to advise the Division of Automated Data Processing on matters relating to the efficient and expeditious network interconnection of computers with other computers or with terminals. (Modems, multiplexers, concentrators and similar device systems are to be regarded as OGTS-governed network facilities);

s) to coordinate applications for, and the dedicated assignment of, all federally-licensed radio frequencies to be used by any Commonwealth governmental unit;

t) to set up and enforce effective procedures to prevent improper uses of state telephones and other telecommunication facilities by unauthorized persons;

u) to assist VPTC in specifying and obtaining appropriate broadband interconnection services and facilities needed by the established public telecommunications entities with regard to their execution of Public Telecommunications Services contracts of the sorts described in Chapter I;

v) to serve the Division of State Planning and Community Affairs adjunctively as a source of professional expertise in the general telecommunications sector;

w) to plan and conduct special seminars and training sessions at which Commonwealth administrators and personnel can learn improved ways of using modern telecommunications processes to facilitate the management and delivery of educational and informational services to the citizens and institutions of the state;

x) to assist the Office of Emergency Services (Civil Defense) and related agencies in planning and developing telecommunications strategies and facility systems to be employed in meeting emergency situations.

3) The OGTS will be supported with funds obtained from applying a special OGTS surcharge* to monies paid out by Commonwealth organs, agencies and institutions for service and facilities leased from Common Carrier Organizations. The VPTC will determine annually the method for computing the special surcharge. The Division of the Budget will be asked to help estimate the probable level of eligible expenditures to be incurred by all Commonwealth units, which figure should then serve as a basis for determining the annual surcharge rate. OGTS expense projection should always be programmed to fall somewhat under the anticipated surcharge collections. If, during an operating year, surcharge collections begin to fall below actual expense commitments, the VPTC should adopt appropriate administrative measures to prevent an improper annual deficit.

The operational expenses associated with the OGTS should in no in-

*This surcharge will be separate from any charges levied by a local (i.e. "non-OGTS-managed") Centrex system against its users to defray the cost of the Centrex operation. Such extra levies must be approved by the OGTS.

stance exceed a surcharge of 5% on all monies expended by the Commonwealth government on CCO services, unless it can be shown to the satisfaction of the VPTC and the Division of the Budget that resultant savings to the Commonwealth will accrue at a yet higher rate.

4) The OGTS should be organized in such a way that its staff will be visibly accessible, expert, responsive and expeditious in helping the various Commonwealth agencies, institutions and organs to solve their critical communications problems through imaginative, coordinated and well-managed telecommunications arrangements and processes. The VPTC and its OGTS component should take special pains to avoid any drift toward "bureaucratic centralism" in the required coordination of Commonwealth telecommunications services, capacities and facilities. The professional emphasis of the whole OGTS effort must be one of regularly providing practical problem-solving and responsive, flexible assistance to all units of the Commonwealth government. The emphasis should not be placed merely on giving approval or disapproval to requests for telecommunications services, capacities or facilities. The OGTS must be governed by a facilitating spirit of "finding a productively efficient way" rather than inhibiting the systematic application of telecommunications to critical tasks under the misimpression that "doing a little saves a lot." This does not mean that all problems have attractive solutions readily available; nor does it suggest that all requests for telecommunications assistance can be met through the OGTS mechanism. But it does mean that the dominant tone of OGTS transactions must be one of sensible execution, not bureaucratic reluctance.

   To meet these objectives, the OGTS must devise flexible operational procedures which allow appropriate persons from the various Commonwealth agencies, institutions and organs directly to contact professional telecommunications analysts/problem-solvers placed on the OGTS staff. Initial contacts by telephone, as against written memoranda, should be encouraged.

   These OGTS telecommunications specialists should have the professional competence and interpersonal skill to help the agency caller quickly to frame the general nature of the communications problem involved. If the caller agency proposes a specific solution to the problem, the analyst must be trained to "set it aside" tactfully so as to involve the agency in an appropriate (re)examination of all the conditions, factors and constraints actually obtaining. This procedure will tend to reduce the "approval-disapproval" role of OGTS, emphasizing instead an active concern with communications problem-solving. It will also allow OGTS to look at the whole task situation from which a particular telecommunications services request arises.

The analyst must be in a position to take expeditious steps to ascertain the pertinent facts underlying a communications problem referred to him. Occasionally this will mean that he will ask the caller agency to provide certain kinds of documentation for study. As a general rule, however, the OGTS staff should eschew the temptation to collect data for the sake of the file, requiring forms and other documentation only when there is a vital demonstrable need to analyze, utilize and retain the information formally contained therein. The analyst should compile a record of the request largely from his own notes or aural tapes. The caller agency should be burdened as little as absolutely necessary in the collection of "paper" information germane to a telecommunications task analysis.

Proceeding with all due dispatch, the analyst, joined by other OGTS staff and consultants as required in the case, should determine the nature, scope, urgency and time-frame of the communications problem under examination. The caller agency should be kept involved in these inquiries to be certain that findings are logical and relevant.

Upon adequate specification of the task, the OGTS should then undertake to ascertain the most efficient telecommunications solution available. This will likely mean referring the task to an on-going OGTS inventory of telecommunications services, capacities and facilities in operation or under contract to see which existing resources, if any, can be brought to bear, and to determine what constraints (as to cost, time access, load limits, traffic priority, confidentiality control, etc.) must obtain. High professional skill and management flexibility will be needed within OGTS to carry forward this vital step of the analytical process so as to realize cost-effective well-coordinated telecommunications results while avoiding the bureaucratic tendency to force communications needs into a "procrustean bed" of unyielding regulation.

On occasion, resolution of the problem will necessitate the contractual (or other) acquisition of new or special telecommunications services, capacities or facilities. The OGTS should be free to undertake such commitments so long as the situation clearly mandates them and provided the financial obligation incurred can be borne by the Commonwealth agency, institution or organ involved. The Division of the Budget should always be consulted in this respect. In no instance should new or special telecommunications resources be authorized by OGTS where such resources already exist and are available within tolerable constraints.

When a decision is reached about an appropriate telecommunications arrangement to meet an analyzed need, the OGTS should draft a brief "action report" outlining its proposals. This report should restate the communications task to be solved and describe the telecommunications services, capacities or facilities to be made available. Costs, deadlines and

other pertinent constraints should be clearly delineated. The report should be furnished the caller agency, with copies forwarded to other affected Commonwealth parties. (These might include higher administrative echelons, other agencies scheduled to use the indicated resources and CCO suppliers.)

If the caller agency agrees with the proposed arrangement and if funding approvals have been given by the Division of the Budget and other affected authorities, the OGTS will proceed to order up and make available the telecommunications resources needed, drawing up such procedural rules as may be prudent for the caller agency to observe.

If the caller agency is dissatisfied with the proposed arrangement, it may appeal to the Director of the VPTC, who will, if the facts indicate, ask the OGTS to review its proposals and findings, making such corrections and modifications as are judged professionally incumbent. If the review does not yield an arrangement which satisfies the caller agency, the agency may appeal directly to the VPTC* itself for relief or remedy. The VPTC*, at a regular meeting or in special session, will examine the OGTS findings and hear the complaint of the caller agency. The VPTC* will then proceed to order appropriate action by OGTS or, if the facts recommend, reconfirm the earlier OGTS findings.

Continued dissatisfaction by the caller agency with the VPTC's* decision may lead to an informal appeal to the Governor's Office, which can resolve the question once and for all.

5) It is anticipated that many of the problems referred to the OGTS will relate to routine telephone service. For this reason, the OGTS will adopt administrative procedures which will require that initial contacts from a caller agency, institution or organ be made with a "referral clerk" whose duty will be to route the caller to appropriate assistance.

Requests relating to routine telephone services will be routed to an appropriate Centrex organization for expeditious handling. Requests having to do with more substantial and less routine matters will be referred to an OGTS analyst, who will follow the general procedures outlined above in Section 4.

6) The OGTS will establish and enforce various, apposite, responsive and flexible management procedures or guidelines by which Commonwealth telecommunications services, capacities and facilities can be most efficiently coordinated and managed.

The following technical components must be addressed in the OGTS procedures:

*Customarily appeals to the VPTC will be handled directly by an OGTS appeals sub-committee appointed by the Chairman.

a) the Centrex systems administratively responsible to OGTS (notably that at Richmond);

b) the Centrex systems administratively responsible to other Commonwealth institutions or agencies, but otherwise subject to OGTS procedures);

c) any and all interconnection networks leased from any CCO, including any tie-line or private line facilities between Commonwealth points or from a Commonwealth point to some other point;

d) any PBX, PABX or other terminal arrays leased by a Commonwealth unit from a CCO or interconnected to CCO networks;

e) any and all microwave networks owned and maintained by any Commonwealth agency, institution or organ, excepting any such systems which are currently under the direct control of the Virginia State Police or which are licensed to any of the public telecommunications entities for the purpose of linking entity-owned facilities with state-supported institutions of higher education;

f) any and all land-mobile radio sender or transponder systems owned or maintained by any Commonwealth agency, institution or organ, excepting any such systems which are currently under the direct control of the Virginia State Police.

Except in the cases of the Centrex systems described in Section 1, paragraph 1 and of the interconnection networks identified above in paragraph c), the OGT'S will not be expected to assume direct administrative responsibility for the day-to-day operation of Commonwealth telecommunications facilities. The administration of these other various facilities will continue with the agencies, institutions and organs with which they are currently linked. However, the OGTS will have responsibility for reviewing their present management procedures and for drafting new, revised procedures which can improve the integration of these facilities with the Commonwealth's overall telecommunications plan and efforts.

It is conceivable that, from time to time, the OGTS will come to a conclusion that an existing telecommunications facility or system not under its direct administration should be closed down, phased out, drastically modified, or transferred. When OGTS studies do so show and the VPTC so confirms, the Governor's Office will be asked to certify and help implement the decision.

The OGTS management procedures for these Commonwealth facilities or systems must contain provisions by which any suggested modification, reduction or expansion in their technical character or task applications can be closely coordinated and approved by OGTS.

While it is not recommended that the OGTS be given comparable management responsibility for microwave and land-mobile systems currently under the direct administration of the Virginia State Police, it is contemplated that the VSP authorities will not expand such existing systems in any significant or major way without holding prior consultations with OGTS. These consultations, which can be maintained in confidence, should seek to determine whether the suggested modifications are for the purpose of gaining telecommunications service capacities which might be already or potentially available from other existing facilities (either owned by the Commonwealth or leased from a CCO) at a more efficient investment rate. Where such proves to be the case, the OGTS will request the VSP (through the Governor's Office) to forgo the expansion and, instead, to make use of the more efficient service arrangements available elsewhere. In these telecommunications matters involving VSP, the OGTS will take into careful account those critical constraints of public safety and communications confidentiality which may obtain in this situation.

If any agency, institution or organ objects to a telecommunications management procedure or decision advanced by the OGTS, it will be free informally to appeal to the Director of the VPTC, the VPTC* itself and ultimately to the Office of the Governor for relief or reversal.

7) After formal adoption by the VPTC of Part Two of the Master State Plan for Public Telecommunications, several steps will have to be taken to bring the OGTS into operational being.

a) The Communications Manager of the Division of Engineering and Buildings should be transferred to the VPTC to serve as Supervisor of OGTS, carrying the title of an Associate Director of Public Telecommunications.

b) A memorandum detailing relevant sections of the Master Plan and describing the functions and authority of the OGTS should be drafted and circulated to all Commonwealth agencies, institutions and organs, noting carefully the deadlines to be observed in transferring administrative locus for the Richmond Centrex and all interconnection network systems.

c) The person currently responsible for frequency coordination should be reassigned from the VSP to the OGTS, to carry the title of Frequency Coordinator, or his duties as pertains to frequency coordination should be transferred to OGTS personnel.

d) The supervisor of OGTS should help the Division of Personnel to screen, nominate, select and orient the remainder of the OGTS staff.

*See footnote to section 4, page 30.

e) the VPTC and the Division of Engineering and Buildings should work out a suitable new headquarters location in the downtown Richmond area for OGTS, as well as the other staff components of VPTC.

f) regular OGTS operations should commence on the advertised date, preferably on the first day of the 1974-76 biennium.

g) the OGTS staff should draw up and promulgate as quickly as practical such rules, regulations, procedures and guidelines as are necessary to provide efficient and coordinative management to all susceptible Commonwealth telecommunications services, capacities and facilities.

The OGTS should phase in the execution of these and other duties and functions outlined above in Section 1 as rapidly as administrative and professional circumstances will allow. (Special staff training and orientation should be viewed as proper, preliminary steps in this process.)

8) While the staff of the OGTS is to have a deliberate relationship to the income generated by the OGTS surcharge described in Section 1 above, the organizational structure of the basic staff will be as follows:

a) the OGTS will be directly supervised by an Associate Director of Public Telecommunications, who will have a secretary;

b) the OGTS professional staff will comprehend two or more Communications Analysts, a Frequency Coordinator, one or more professionally-licensed Electrical Engineers*, one or more competent Accountants*;

c) the OGTS para-professional staff will include one or more "referral clerks," one or more Centrex Chief Operators, two or more Centrex Operators;

d) the OGTS clerical staff will include a number of clerks*, typists*, secretaries* and bookkeepers*.

9) In conducting routine or special analyses, in connection with the solution of communications problems, the OGTS should be professionally astute in making reasonable use of the high professional skills available without charge from CCO suppliers. Not only will this increase the task capabilities of the limited OGTS staff, it will serve the even-more consequential function of involving CCO specialists at the analysis and planning stages rather than relegating these highly-trained and dedicated professional persons to the awkward *ex post facto* role of mere "order

*The services of these persons may be shared with other aspects of VPTC staff operations.

takers." This is not to indicate that the OGTS should abdicate in any way essential control over critical decision-making about facilities allocations to persons outside the Commonwealth government, but that the professional advice and assistance of CCO specialists can augment OGTS expertise if wisely sought and properly engaged.

For those Commonwealth institutions having a telecommunications master plan developed in consultation with VPTC, and having telecommunications expertise available on their own staffs, the OGTS will work with and through the institutional master plan and institutional expertise to effect coordination of telecommunications programs, services, and activities.

10) To facilitate the coordinative responsibilities of the OGTS and the VPTC with respect to the budgeting and costing of telecommunications resources by the individual Commonwealth agencies, organs and institutions, the Division of the Budget will be urged to recommend to the General Assembly that all funds appropriated for telecommunications expense, or all categories of special income set aside for similar purposes, be restricted or be designated in each such item of the Appropriation Act through use of the following language, or its equivalent:

> No state agency shall expend any funds for telecommunications resources, services or facilities, except in compliance with the Master State Plan for Public Telecommunications, as determined by the Division of the Budget on prior advice of the Virginia Public Telecommunications Council.

11) To carry out its responsibilities in the vital sector of telecommunications research-and-development for the Commonwealth government, the OGTS will be empowered to design, conduct and evaluate systematic and pragmatic investigations of new technologies, operational procedures and monitoring processes. To this end, the VPTC will be empowered to commit limited sums of OGTS monies to carefully specified telecommunications experiments and studies (of both formal and informal character.) To the extent that an experiment actually yields valuable telecommunications services, capacities and facilities to a Commonwealth unit during its term, that unit will be expected to pay a reasonable share of the costs associated with the effort.

Wherever feasible, the OGTS should make use of apposite research expertise available from Virginia sources, including that resident in state-supported institutions of higher education, other state agencies, the public telecommunications entities and CCO suppliers.

During the initial phase of OGTS operation, the VPTC should consider giving high priority attention to research-and-development projects re-

garding the following issue and technologies (no order of rank intended):

a) high-speed facsimile systems with both "hard copy" and "soft copy" capabilities;

b) video networking among the telecommunications entities, the community college campuses, state-supported institutions of higher education, state agency locations;

c) broadband multiplexing network capacities by which a variety of services can be managed and extended to and between numerous Commonwealth locations;

d) new technologically-facilitated charge and billing procedures for telephone and data services which would tend to reduce manual audit requirements by Commonwealth and CCO personnel;

e) data/document storage-and-access systems which would tend to cut back on a need for "hard copy" print-outs or files, substituting "soft copy" call-up displays from electronic sources;

f) audio recording and storage systems by which certain sorts of narrative report materials can be collected by Commonwealth sources, stored and referenced without necessarily involving costly stenographed print-outs.

The OGTS should establish a very close professional liaison with the Division of Automated Data Processing so that research-and-development studies involving information processing (as well as transmission) can be undertaken on a cooperative basis.

In this connection, the OGTS should regularly identify staff personnel in ADP and all other Commonwealth units which have been specifically assigned "communications" responsibilities. The OGTS should establish effective procedures for maintaining close, working contacts with these designated persons. Where no such assignments have been made, the OGTS might find it desirable to urge agency or institutional heads to make appropriate staff designations. In certain special circumstances, the OGTS might also wish to form working committees of designated "communications" personnel in order to expedite surveys and implement policies.

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CHAPTER IX

POLICIES RELATING TO CERTAIN TELEMEDIA FACILITIES AND CAPACITIES OWNED, LEASED, OPERATED OR MAINTAINED BY COMMONWEALTH UNITS

1) Consistent with the policy assertions stated in Section 8 of Chapter II, the VPTC must assume administrative responsibilities for coordinating the orderly growth and desirable development of telecommunications media systems of various kinds which now exist, or may come to exist, within the various state agencies, Commonwealth organs* and state-supported institutions of higher education.

Effective with the adoption of the provisions contained herein, the Division of the Budget, the Department of Purchases and Supply and the Division of Engineering and Buildings will set up effective procedures by which the VPTC will be forwarded appropriate documentation regarding any and all requests, requisitions or capital-outlay proposals which incorporate or comprehend the purchase, rental, lease, loan or construction of any significant telecommunications media systems or facilities, including *inter alia*: television film or audio production studios, audio or video control rooms (fixed or mobile), television or motion picture cameras, videotape recorders and players, audio or video duplicating banks, CCTV or MATV networks (within single buildings or between buildings) or film-editing or motion picture processor facilities. (Specifically exempted from this category would be public address systems; computers; television and radio receivers per se; inexpensive portable audio recorders and players per se; phonographs and language laboratories per se; still photographic cameras, microphones, audio consoles, preamplifiers and amplifiers not integral with studio facilities; photographic darkroom apparatus not essentially associated with a motion picture processor facility; antenna systems feeding fewer than six outlets or receivers within a single building; and miscellaneous spare parts for existing telecommunications systems.)

No action should be taken by the Division of the Budget, the Department of Purchases and Supply or the Division of Engineering and Buildings on such requests until and unless the VPTC shall give its approval or disapproval regarding the telecommunications media components comprehended or involved, except that the VPTC must issue a written disapproval, if one is indicated by the facts, by no more than twenty

*The counties, cities and towns, including the associated local public school divisions and the Planning Districts, are specifically exempted from the provisions of this chapter.

work days after receipt of the appropriate documentation. Failure by the VPTC to act within that period will carry a presumption of VPTC approval. If circumstances warrant, the VPTC may choose to issue within the allowable period a provisional disapproval; that is, one subject to additional investigation by VPTC staff or consultant. A conditional disapproval, unless rescinded by VPTC within six months, will become binding.

2) If any Commonweath agency, organ or institution shall receive a disapproval from VPTC in connection with a request, requisition or capital-outlay proposal incorporating or comprehending telecommunications media facilities, it will be granted the right of appeal. Such an appeal from a VPTC disapproval must be made in writing to the Director of Public Telecommunications within twenty working days following notifications of VPTC action, such notification having been forwarded by the intervening Commonwealth agency to which the initial request, requisition or proposal had been directed.

The Director will review the matter with staff, consultants and others, issuing a confirmation, modification or reversal of the original disapproval within ten working days.

Continued dissatisfaction with the VPTC decision can lead to an appeal by the agency, institution or organ to the VPTC itself, which appeal will be answered at the first scheduled meeting, or in any case within a three-month period. The final decision of the VPTC will be forwarded the Office of the Governor for confirmation or reversal.

3) In those instances in which the VPTC has disapproved a telecommunications media request, requisition or capital-outlay proposal by a state-supported institution of higher education, including the Department of Community Colleges, a special step in the appeal process outlined above may be employed if the chief executive officer of the affected institution, the Chancellor of the Community College Department, or the Executive Director of the Council on Higher Education so urges the Director of Public Telecommunications.

The Director of Public Telecommunications will ask the Community College Chancellor and Executor of the Council on Higher Education to appoint an *ad hoc* committee of four persons to consider the matter in question. The committee should be composed of four persons who have some professional understanding of the telecommunications media field, but who are not directly associated with the institution or department involved in the appeal. The Secretary of Education will be asked to serve as Chairman, or the Governor's Office will appoint a chairman. Costs incurred by the Committee will be shared by the VPTC, the De-

partment of Community Colleges and the Council on Higher Education. At a convenient date and time, the VPTC staff and the appellant institution or department will present oral or documentary evidence to the committee regarding the matter in dispute. Within a period of thirty working days, the Higher Education Appeals Committee will render an advisory judgment to the Director of Public Telecommunications. If he accepts the judgment, the results will be appropriately binding on all parties in the process. If he rejects the judgment, the institution or department involved may carry forward an appeal directly to the VPTC itself.

4) The VPTC will be responsible for drawing up guidelines and criteria by which the feasibility, advisability and desirability of telecommunications media growth and development within Commonwealth units can be reasonably assessed. While the specific details of such criteria would be inappropriate in the Master Plan itself, there are certain broad principles which should be observed.

   a) The telecommunications media capacities or facilities to be developed or obtained should not be redundant of existing resources or of resources reasonably available to the requesting agency, organ or institution under the VPTC Public Telecommunications Services Contract policies described in Chapters I and II.

   b) The media facilities to be developed or obtained should be technically compatible with other such facilities in the Commonwealth telecommunications domain, unless compatibility of interface or interconnection is manifestly extraneous to the tasks to be executed, in which special case non-standard parameters may be allowed if some compelling justification can be shown.

   c) The educational or administrative task associated with the facility is shown to be one of continuing substance or criticality and one commensurate with the costs incurred.

   d) The facility can be shown to be under the management of an adequately trained staff which can be assigned the appropriate duties.

   e) The facility is not likely to become technically obsolete within a reasonable depreciation period.

   f) Budgetary support for operation and management of the facility is predictably suitable. (The Division of the Budget will be relied on in applying this test.)

   g) The facility will not be employed in any significant way to yield services, capacities or products which have primary value to beneficiaries outside Virginia, unless it can be shown that the facility is to be gained and supported entirely, or largely, through non-state funds.

5) The VPTC will carry forward continuous inventories of all Commonwealth telecommunications media facilities and resources. In each instance of extant facility operation, the VPTC will make a determination of categories-of-fact which conform generally to the principles listed above in Section 4.

Facilities which substantially meet the criteria implicit in these principles will be urged by the VPTC to continue their service.

Facilities which fail substantially to meet a significant number of the implicit criteria will be so advised by the VPTC. At the same time, the VPTC will draw up written recommendations which would indicate what courses of action should be taken to bring the facility to an acceptable level of service; to transfer the facility (or its functions) to some other source; or to phase out or close down the facility. The agency, institution or Commonwealth organ which is administratively responsible for these facilities will be informed that the VPTC staff will arrange for a special informal hearing on the matter, if desired, within two calendar months. If the agency requests such a hearing, the VPTC staff will fix a convenient date, time and place. Invitations to the informal hearing will be extended to the affected agency, institution or organ, to the Division of the Budget, the Division of Personnel (if there are to be consequential personnel changes resulting from the VPTC recommendations), and to any other Commonwealth units having a vital interest in the outcome of the matter.

The hearing, to be conducted under the chairmanship of the Director of Public Telecommunications, will be structured to review the pertinent facts and relevant criteria on which the VPTC recommendations had been based. The appellant agency, organ or institution will be asked to present such pertinent and/or contrary evidence as it feels the circumstances warrant. Upon conclusion of the hearing, the Director will seek the advice and counsel of the representative(s) from the Division of the Budget, the Division of Personnel and any other Commonwealth unit involved before confirming, modifying or reversing the original VPTC recommendations. The Director's writtten findings must be circulated among the various parties within thirty days after the hearing.

If the agency, organ or institution which operates the affected facility objects to the Director's findings, it may appeal in writing to the VPTC itself for review and relief. The appeal process will then parallel that described above in Section 2, paragraph 3.

The VPTC will call on the Office of the Governor to confirm and implement its final recommendations in the matter.

6) The VPTC will be empowered to draw up and enforce policies, rules, regulations, procedures and guidelines governing the management, op-

eration and coordination of any and all telecommunications media facilities or systems maintained by any agency, institution or organ of the Commonwealth government. As a general principle, however, the VPTC will attempt, wherever feasible, to delegate those doctrinal responsibilities directly to the Commonwealth units administratively concerned with such facilities.

The VPTC will need to be kept informed about the character, language, scope and effect of such policy statements when adopted and implemented at the local facility level. The VPTC will have the right to intervene in the adoption and implementation of any such policy statements and practices if it feels the necessity to do so. The affected agency, institution or organ will have the right to appeal what it adjudges to be an adverse VPTC intervention, following the general processes outlined above in Section 2. During the course of such appeals, the locally-drawn policy statement shall remain in effect.

7) The VPTC should take judicious steps to encourage the active involvement of its professional staff and consultants in the advance planning of major telemedia facilities and operations by Commonwealth agencies, institutions and organs which maintain or propose such resources. Where effected, this arrangement would have the desired result of bringing the VPTC into the coordinative process even prior to the required approval point indicated in Section 1. Such prior involvement of the VPTC would likely reduce the tendency by affected Commonwealth agencies, institutions and organs to regard VPTC as a bureaucratic hurdle. It would intensify the "problem solving" function of the VPTC staff, although it is to be noted that to the greatest extent feasible the VPTC should leave to immediate users the detailed specification of telemedia resources and activities to be used in "programmatic" applications. This is somewhat in contradistinction to the separate policies governing the more direct administrative responsibilities of OGTS in solving communications problems which involve interconnective networking telephone services and the like. The VPTC should actively encourage state-supported institutions of higher education to develop and implement continuously updated "master plans" for their own telemedia facilities and resources. The VPTC should try to provide apposite professional assistance to such "master planning", and where an institutional master plan has been developed in conjunction with the VPTC to insure compliance with state master plan provisions, the instrument for the implementation of VPTC responsibilities will be the institutional master plan for telecommunications development. In which case, the procedures outlined herein will not be applicable except as such procedures might be reasonably necessary in assuring the continuing integrity of the institutional master plan as approved.

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CHAPTER X

POLICIES RELATING TO THE MANAGEMENT AND OPERATION OF INTERCONNECTION NETWORKS AND CERTAIN RELATED CENTREX SYSTEMS BY THE OGTS OF THE VPTC

1) As indicated in Chapter VIII, the VPTC, through OGTS, should assume direct administrative responsibility for the day-to-day management and operation of:

   a) all dedicated interconnection networks (CCO-leased, "Added-Value", or state-owned, except as noted*) to be employed by the various organs, agencies and institutions of the Commonwealth government; and

   b) those VPTC-designated larger Centrex systems which can serve a multiplicity of Commonwealth organs, agencies and institutions located within a defined metropolitan area, as for example, the Richmond Centrex.

2) The procedures drawn up by the OGTS for the management and operation of these systems (including apposite procedures brought forward from pre-existing administrative arrangements) must depend on the specific character of the technical systems actually engaged and the particular communications tasks to be attempted. Even so, there are certain fundamental principles which should obtain (within the policy framework described in Chapter VIII).

   a) All eligible Commonwealth agencies, institutions and organs should be allowed and encouraged to use OGTS-managed multi-function networks to the reasonable extent such uses can contribute to the practical efficiency of their statutorily-defined service operations, but the VPTC/OGTS should establish no formula for setting up an artificial and arbitrary "equity of access and benefit" among the various Commonwealth network users.

   b) No Commonwealth user should be granted a fully-dedicated network (or fully dedicated capacities, channels or frequency services within other networks) except where the public safety shall be clearly and continuously involved, except where a level of essential confidentiality can be assured by no other means, or except where full-dedicated facilities involve technical capacities not otherwise useful, available or needed.

*Note especially Chapter VIII, Section 5.

c) The technical specifications for network service assignments and allocations among the various Commonwealth users must rest with the OGTS and, to the extent the law may require, with affected CCO suppliers. (These technical specifications should extend to such factors as bandwidth, routing, signal-to-noise ratio, linearity and equalization, wave form, multiplexing format, distortion, and power, as well as to other parameters of the particular mediating technologies to be employed, with or without peripheral devices, as for example, voice-grade telephony, teleprinting, facsimile, television, analog or digital data transmission, etc.)

d) The priority-scheduled time assignments of specified network services among the various Commonwealth users must rest with the OGTS, and to the extent the law may require, with affected CCO suppliers.

e) In establishing time assignments and technical allocations for network services among the various Commonwealth users, OGTS analysts must always consult closely, and on a prior basis, with the affected users in order to make the most reasonable determination of task requirements and network (or related) facility needs. No network assignment or allocation (including dedication) can be made by OGTS without an appropriate prior authorization by the affected Commonwealth user(s), except that a change in pre-existing network assignments, or allocations and priorities may be instituted by OGTS upon user notification but without user authorization if no significant interruption or reduction in approved network services will result or if, in the view of OGTS and the Office of the Governor, an over-riding telecommunications emergency exists.

f) Commonwealth Centrex telephone services should be considered as an integral aspect of overall OGTS network operations, although there may be certain administrative differences in the ways in which specifically-designated Centrex services are to be handled (as indicated, for example, in Chapter VIII, Section 5).

g) OGTS network (including Centrex) services will be paid for directly by the user agencies, institutions and organs at a monthly, quarterly, semi-annual or annual rate to be determined by the OGTS. The rate factors should comprehend all CCO charges and any applicable OGTS (or other approved) surcharges. The OGTS, the Division of the Budget, the Auditor of Public Accounts and the Comptroller's Office should jointly determine what billing procedures are to be followed by users in connection with all such charges.

h) Except in the instance of any "Added Value Networks" which the

Commonwealth may help institute, the dedicated network facilities and capacities operated and managed by the OGTS will not be available for privileged access and use by non-Commonwealth sources, except that the five established public telecommunications entities may be allowed network access and use on exactly the same cost bases which would apply to Commonwealth users for the same services involved, or requested, which network facilities are genuinely necessary to the required execution of a VPTC Public Telecommunications Services Contract and are not to be employed to any significant extent for telecommunications purposes essentially inconsistent with the Commonwealth governments' legal relationship or obligation to these entities (especially as described in Chapter I, Selection 2).

i) In establishing and implementing network priorities among Commonwealth network users, the OGTS should take into account a variety of weighting factors with respect to the governmental services involved, including: *criticality, urgency, responsiveness* (i.e. flexibility, relevance and convenience) and *efficiency*.

A governmental task which is critically and urgently necessary should be given *top priority* in gaining telecommunications services which should yield high relevance and instantaneous convenience with at least an acceptable efficiency.

A relatively important, continuously needed governmental task should be given *high priority* in "accessing" telecommunications services which should yield direct relevance and reasonable convenience at a satisfactory efficiency.

A relatively less-important, occasionally required governmental task should be given *lower priority* in "accessing" services which need yield only adequate relevance and sufficient convenience but still at a satisfactory efficiency.

The OGTS will be professionally responsible for developing and implementing a dynamically-relevant hierarchy of detailed priority criteria by which all assignments and allocations can be reasonably made. Before being put into practical effect, the priority criteria must be submitted in writing by the OGTS to the Director of Public Telecommunications for his final approval. Where circumstances indicate, he will consult with the Office of the Governor, or refer the matter to the VPTC itself, before giving assent. Any Commonwealth agency, institution or organ which objects to the imposition of a priority criterion, or a decision based on such a criterion, will have the right to appeal to the VPTC (and ultimately on to the Office of the Governor) for relief or reversal, following the procedures described in

Chapter VIII, Sections 4 and 6. During that period allowed for such an appeal process, the criterion con criteria) involved will not be applied to an appellant, even though all other decisions predicated on these criteria will remain fully in effect until a final administrative judgment has been rendered.

j) The OGTS will be administratively responsible for all negotiations and operational contracts with all CCO suppliers involved in network activities, although the OGTS may on occasion choose to delegate to designated Commonwealth users certain day-to-day contracts with a CCO supplier requisite to the regular employment of a network facility or capacity by the user. In such instances, the OGTS should instruct the designated user in the contact procedures to be followed. The VPTC should take note of the fact that the Commonwealth government may from time to time become a beneficiary participant in the operation of networks largely controlled by, maintained by and funded by other interests, most notably the federal government. The OGTS will assert no responsibility over these network arrangements when it can be shown that no state funds are employed directly in their construction, leasing, or maintenance and that any state-supported personnel involvements in these networks are incidental to academic, research or public safety efforts of high consequences. If state funds are involved in such "shared" networks (at facility points or through personnel commitments), the OGTS will have ultimate responsibility for managing the Commonwealth's participation. The OGTS will generally delegate day-to-day operational responsibilities to the institutions or agencies which directly benefit from the network services.

k) To the degree which is professionally prudent and wise, the OGTS should arrange for interconnective network services to be obtained for Commonwealth agencies, organs and institutions from CCO suppliers with the fewest feasible number of separate orders, lease contracts and billing arrangements. Where possible and desirable, unified "broadband" multiplexing systems leased under single contractual orders should be instituted and operated under coordinated OGTS management.

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CHAPTER XI

SUMMARY OF CERTAIN ADDITIONAL DUTIES OF VPTC STAFF AND CONSULTANTS

In addition to those staff and consultant duties adumbrated in Chapter VI of Part One of the Master State Plan for Public Telecommunications, the VPTC staff and its roster of special consultants should take on those related coordinative responsibilities pursuant to the provisions of Part Two, Chapter VII and IX, having to do with telecommunications media resources owned, leased or maintained by Commonwealth agencies, organs or institutions.

The essential and particularized duties, functions and responsibilities of the OGTS, which is to be an integral unit of the VPTC operation, are described in Chapter VIII, notably Sections 2, 4, 5, 6, 8 and 9.

The duties, functions and responsibilities of staff persons assigned to OGTS-managed Centrex systems (or to any related OGTS-managed networking facilities) will be appropriately detailed through VPTC procedural manuals or guidelines to be drafted and adopted by the VPTC (with the assistance of the Division of Personnel) sometime after formal initiation of OGTS operations.